

Upper Mississippi River Nine-Foot Channel Project,
Lock and Dam Complex Number 11
Spanning the Upper Mississippi River between
Dubuque, Dubuque County, Iowa
and
Grant County, Wisconsin

HAER No. IA-23

HAER
IOWA,
31-DUBU,
11-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Rocky Mountain Regional Office
National Park Service
U. S. Department of the Interior
P. O. Box 25287
Denver, Colorado 80225

HISTORIC AMERICAN ENGINEERING RECORD

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Location:

Located on the Upper Mississippi River adjacent to the northern edge of the city of Dubuque, Iowa, and 583 river miles upstream from the confluence of the Ohio and Mississippi rivers. The complex stretches across the river at a point where the bluffs on both sides of the river are close together. The site is dominated by the sheer bluffs of Eagle Point on the Iowa side of the river. A city park, Eagle Point Park, occupies the high ground on the bluff above the lock and dam. A complex of islands and sloughs extend three-quarters of the way across the river from the Wisconsin shore. A federal wildlife refuge, the Dubuque unit of the Upper Mississippi River Wildlife Refuge, occupies the sloughs, islands, and low lands adjacent to the Wisconsin shore, both upstream and downstream from the dam. A levee built as an approach to Eagle Point Bridge site south of the dam's dike section. The bridge itself was demolished in 1982, but the levee remains. The earthen embankment dike section of the dam ties to this levee which is not an official part of the complex; therefore, although the official complex does not span the whole river, structures do. The esplanade adjoins the Iowa shore at the base of the bluff; the lock is just riverward of the esplanade with the movable section of the dam tying to the easternmost lock wall. The earthen embankment section of the dam extends from the movable section to the old bridge approach levee. Corps Drawing Numbers M-L 11 10/4; 10/5; HAER Photograph Numbers IA-23-1 through IA-23-50.

Dates of Construction: 1934-1937

Present Owner: U. S. Government
Rock Island District
Corps of Engineers

Present Use: River navigation/hydrology control

Significance: The U. S. Army Corps of Engineers Nine-Foot Channel Project (1927-1940) represents the culmination of a 100-year effort to improve the navigability of the Upper Mississippi River between the mouth of the Missouri River and Minneapolis, Minnesota. This

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specific project arose as a response to the farm crisis of the 1920s. Proponents of the New Deal adopted the project and gave speed to its construction as a means of providing public employment during the more general depression of the 1930s. By the 1940s, the completed project had converted over 650 miles of free-flowing river into a series of interconnected reservoirs which ensured enough water for fully loaded modern boats and barges to navigate the system. This constituted a significant alteration of the natural environment of the Upper Mississippi River. However, the project also brought economic benefits to the communities along and around the river corridor and led to new recreational opportunities for the entire region.

The Upper Mississippi River Nine-Foot Channel Project inaugurated a new development in slack-water navigation system dam practice in the United States: the adoption of a non-navigable dam containing both roller and Tainter gates. Prior to the Corps' 1930 decision to build non-navigable dams on the Upper Mississippi River, United States Army engineering practice had, nearly universally, been to construct navigable dams, permitting open-river navigation at higher river stages. By 1930, European engineers had been using roller gates in dams extensively for over 25 years. However, only ten such structures had been built in the United States, and these were all located on reaches of rivers where ensuring navigability of any sort was not a design concern. It was not until 1925-1926 that civilian engineers pioneered the use, in the United States, of roller gates in combination with other types of gates. Most of the Corps' Upper Mississippi River project dam designs expanded upon this development, incorporating both roller and Tainter gates. The Corps' shift from navigable to non-navigable dams demonstrates the influence of shipping techniques on navigable waterway improvement technology. It also exemplifies the cautious nature of American Army engineers' response to changes in shipping. The Corps' choice of this particular type of non-navigable movable dam illustrates the influence of the hydraulic characteristics of individual rivers on the selection of waterway improvement technologies. It also evidences the manner in which critical engineering design developments are disseminated and become accepted.

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Ironically, the Upper Mississippi River Nine-Foot Channel Project also resulted in the obsolescence, by the project's end, of combination roller and Tainter gate dams. Technological advances resulting from the research and development incidental to the design and construction of the 26 lock and dam systems in this project enabled U. S. Army Corps of Engineers to develop both submersible and non-submersible Tainter gates which nearly matched the capabilities of the roller gates. Once these less expensive and easier operated and maintained gates had been developed, American engineers ceased designing or constructing combination roller and Tainter gate dams. The Corps' creation of a new dam type and its subsequent obsolescence during the course of a single project dramatically illustrates both the evolutionary nature of American engineering in general and the Nine-Foot Channel Project in particular (Text, pages 11 and 49-50. See HAER No. IA-23 for complete history, footnotes and bibliography).

Historian:

Mary Yeater Rathbun

August 1988

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Dates of Erection: 1934-1937
2. Architect/Engineer: U. S. Corps of Engineers, Rock Island District
3. Original and Subsequent Owners: U. S. Government--Rock Island District, Army Corps of Engineers
4. Builders, Contractors, Suppliers:

General Contractor--Lock and Central Control Station Construction:
Warner Construction Company, Chicago, Illinois

Subcontractors:

Lakeside Bridge & Steel Co. Fabrication, erection, and place-
Milwaukee, Wisconsin ment of all structural steel:
miter gates, tainter valves,
castings, operating machinery,
steel in central control station,
handrailings, floor gratings,
rubber seals, etc.

C. O. Pape.....Riprap and derrick stone
Dubuque, Iowa

H. Knudson & Company.....Cleaning and painting all steel
Chicago, Illinois and machinery, painting oak timber
gate fenders and central control
station

Dubuque Electric Construction Co...Placing metal and fiber conduit and
Dubuque, Iowa electrical grounding system

Mullen Brothers & Company.....Installing plumbing and heating
Dubuque, Iowa units in central control station

Geisler Brothers.....Installing gutters and downspouts,
Dubuque, Iowa laying roofing, and waterproofing
outside of basement walls of
central control station

Merrill Chapman.....Glazing windows and doors in
Dubuque, Iowa central control station

Max Mueller.....Plastering partitions in central
Dubuque, Iowa control station

Drake Marble Company.....Tile and terrazo work in central
St. Paul, Minnesota control station

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General Contractor--Dam Construction: Maxon Construction, Dayton,
Ohio

Subcontractors:

Grant Contracting Company.....	Dredging, filling for cofferdam
Greenville, Ohio	no. 1
R. C. Mahon Company.....	Fabrication, erection, and place-
Detroit, Michigan	ment of all structural steel:
	tainter and roller gates, tainter
	gate operating machinery, service
	bridge
E. C. Schroeder.....	Riprapping and roadway on embank-
McGregor, Iowa	ment dike

General Contractor--Power, Control, and Lighting System Construction:
Sterling Electric Construction Company, Minneapolis, Minnesota

Subcontractors:

National Electric Product Co.	Conduit
Economy, Pennsylvania	
General Cable Corporation.....	Splice packages for lead cable
Chicago, Illinois	
Cutler-Hammer, Inc.	Switchboard, safety switches,
Milwaukee, Wisconsin	control cabinets, limit switches,
	switchboard instruments
American Hoist and Derrick.....	Haulage units

General Contractor--Road Construction: Elia Alexoff, d.b.a. Service
Transfer Company, Davenport, Iowa

Subcontractor:

J. P. Hurley Construction Co.	Completed road construction
Dubuque, Iowa	

Subcontractor--Esplanade Construction:

Chicago Fence and Equipment Co. ...	Furnished and erected esplanade
Chicago, Illinois	fence

5. Original Plans and Construction:

U. S. Army Corps of Engineers, Rock Island District, construction
drawings submitted by associate engineer Edwin E. Abbott; direct
supervision of construction by resident engineer W. A. Turner.

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6. Alterations and Additions:

<u>Item</u>	<u>Year</u>
Replacement-tainter gate operating machinery	1937
Construction-500-foot-cell foundation concrete extension to upstream end of river wall of lock	1940
Construction-upper approach flow deflecting sand dike from Iowa shore	1941
Construction-extension to upper guidewall	1942
Land wall and lock gate handrails lowered by one rail and new handrail made from salvaged materials installed on both edges of each lock wall and on upstream side of walkways on top of lock gates	ca. 1945
Construction-handrail on upstream side of dam service bridge	ca. 1945
Construction-500-foot earthen dog leg extension to upstream land wall of lock	1947-1948
Construction-frame air-lock vestibule at upstream end door of central control station	ca. 1970
Addition-boat launches on lock walls	ca. 1970
Replacement-haulage units	ca. 1971 and 1973
Construction-metal and glass shelters around land wall control cabinets and at end of the guidewall of lock	ca. 1972
Removal-Lockmaster/Assistant Lockmaster residences from esplanade	ca. 1975
Removal-standby generator for machinery room of central control station	ca. 1975
Construction-emergency generator building	ca. 1975

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Replacement-wooden plank hatches on dam service bridge deck with aluminum ones	ca. 1979
Installation-traveling mooring kevels extending length of guidewalls of lock	1980
Construction-new workshop building	1980-1981
Construction-concrete, metal, and fiberglass covers over machine pits on main lock	1983
Replacement-crane on dam	1983-1984
Replacement-light posts and light fixtures around lock	1984
Replacement-exterior wall covering of central control station and frame air-lock with brick one incorporated into main building	1985
Construction-visitor center	1987-1988

B. Historical Context:

The special board of engineers which initially designed the Nine-Foot Channel Project did not see the construction of Lock and Dam Complex 17 as a high priority. The board placed complex 11 in the third group of four groups of projects to be constructed. In its 1931 final report, this board located the complex above the village of Sprecht's Ferry, Iowa. In 1933, the Corps moved the proposed location of Lock and Dam 11 adjacent to Dubuque, Iowa. The acute unemployment in the Dubuque vicinity led the government to get construction of the complex underway a year or so before many other group "C" projects in the Rock Island District.

In January 1934, Warner Construction signed a contract for construction of the lock. A. A. Lindblom of Davenport, Iowa, built the temporary construction project buildings. Within the four-month interval between its announcement of the new site and contract award, the Corps changed the orientation of the complex. The original plans called for locating the land wall of the lock nearer the Iowa shore. Due to rock outcroppings discovered by the Pennsylvania Drilling Company of Pittsburgh during October 1933, test borings, the Rock Island District engineers moved the lock into the river approximately 28 feet and then revolved the axis of the lock and dam downstream 2 degree 11 minutes, pivoting on the lower end of the downstream guidewall. This moved the upper end of the upstream guidewall about 100 feet into the river from its first location.

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The rush to get construction underway perhaps accounts for inadequate initial engineering assessments. In 1940, after the complex was completed, the St. Paul District staff at the hydraulic laboratory at the University of Iowa in Iowa City, Iowa, built a model of the complex as constructed and conducted tests on how best to distribute the flows going throughout the dam gates to minimize damage to the Eagle Point highway bridge approach dike.

The February 5, 1934, to August 22, 1935, construction of the lock was relatively uneventful. However, that was not the case with Maxon Construction Company's October 10, 1935, to May 16, 1937, dam construction project. The first section of the cofferdam, tied to the riverwall of the lock, failed three times. In April 1936, flood waters overtopped the cofferdams, while permanent work was in progress behind it. The inside row of piling in two of cofferdam section 1's cells bulged inward, necessitating repairs.

The majority of specific items of engineering significance at this complex relate to the dam. The Rock Island District designed Dams 11 and 18 concurrently. The Corps incorporated new, innovative technology in the two structures. Rock Island District associate engineer Edwin E. Abbott signed the contract drawings for Dam 11 in July 1935 and those for Dam 18 in May 1935. They were the first Rock Island District dams to employ 2b Tainter gates, the revised design of which the district only finalized on September 4, 1935--a mere 22 days before it awarded the contract for the construction of Dam 11 to Maxon Construction Company. Dams 11 and 18 were also the first two dams in the District to utilize submersible roller gates. Dam 11's three roller gates each submerge eight feet. Both of these new gate types required revised operating machinery. The newly-designed machinery was not, however, successful on the Tainter gates. The R. W. Kaltenbach Corporation of Bedford, Ohio, was ordered to furnish and deliver the new jack shaft gears and drive shaft pinions to the Tainter gate operating machinery in April 1937. In June, after the dams were complete, the Iowa Machine Works and Foundry of Clinton, Iowa, and Murray Iron Works of Burlington, Iowa, actually replaced these parts of the Tainter gate operating machinery on All 13 of Dam 11's Tainter gates.

The dam system consists of 13 2b-type Tainter gates, 3 submersible roller gates, and a curved, non-overflow earth and sand-filled dike. Lock dimensions are the standard 110 feet by 60 feet with additional footings for an auxiliary lock of standard dimensions. Lock lift is 11 feet. Normal upper pool elevation is 603.0; this is about 19 feet above the tail waters of the dam at low water. When both pools are at their normal elevation, the difference is reduced to 11 feet or less.

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The lock and dam elements of the complex took almost three and a half years to complete at a cost of \$6,655,000. During the peak of construction, 901 people were employed on the project. The complex was placed in operation as a unit of the Upper Mississippi River Nine-Foot Navigation Project on September 14, 1937. It was the fifth of the 1931-1940 Upper Mississippi River Nine-Foot Navigation Project complexes in the Rock Island District to go on line.

PART II. TECHNOLOGICAL INFORMATION - LOCK

A. General Statement:

1. Design Character: Standardized Ohio-Mississippi Lock Design. Drawing Number M-L 11 20/1.
2. Condition of Fabric: Good

B. Description of General Layout and Principal Elements:

1. Overall dimensions: Main lock chamber - 110 feet wide by 600 feet long by 40 feet high; adjoining incomplete auxiliary lock chamber 110 feet wide by 40 feet high. Lift - 11 feet. Drawing Number M-L 11 20/1.
2. Foundations: 30-foot-round timber pile with 25 to 30-foot sheet pile cutoff walls enclosing outside limit. Drawing Number M-L 11 20/2.
3. Walls: Reinforced monolithic concrete with steel rub bars embedded in chamberward faces of the walls upstream and downstream from the lock gates. Land wall adjoins Iowa shore. Intermediate wall is riverward wall of main lock and landward wall of incomplete auxiliary lock. River wall of auxiliary lock ties to dam on east. Drawing Numbers M-L 11 20/4, 20/6, 20/9, 20/19, 20/20, 20/28, 40/1.
4. Structural System: See above.
5. Bullnoses: Concrete configurations at each end of intermediate wall. Drawing Number M-L 11 20/19.
6. Upper and Lower Guidewalls: Extended monolithic reinforced concrete walls extending the landwall out of the lock chamber at either end to assist guiding of barge traffic into the lock. Drawing Number M-L 11 20/11.
7. Riverwall Extension: 800-foot-long cell foundation, concrete extension to upstream end of riverwall. Added in 1940 to assist in counteracting outdraft which made navigation into and out of the upstream end of the lock difficult. Drawing Number M-L 11 10/48A.

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8. Dog Leg Extension of Upstream Guidewall: 500-foot-long earthen dog leg extension to the upstream guidewall. Added in 1947-48 to assist in counteracting outdraft which made navigation into and out of the upstream end of the lock difficult.
9. Stage Recorder: Small concrete housing located at the end of the downstream guidewall. Equipment housed for the recording of river stages.

C. Mechanical Equipment:

1. Tainter Valves: Four cable drive lock valves of steel construction with electric motorized assembly. Valves are located in walls in lock walls. They are operated by switches in weatherproof control cabinets on lock walls, with a cabinet beside each gate recess. Control cabinets on landwall surrounded by metal and glass shelters since mid-1970s. Drawing Numbers M-L 11 25/1, 28/1, 20/12.
2. Gates: Two pairs of miter gates on main lock and one pair on upstream end of incomplete auxiliary lock. All three pairs are balanced on stainless steel pintels. Those in main lock are operated by arms, gears, and electric motor assemblies. Motor assemblies housed in machinery pits in lock walls adjacent to each leaf. Machinery pits for main lock machinery covered by raised concrete, metal and fiberglass enclosures in 1983. Operated by switches in control cabinets. Bumper line of chamber face of gates also of stainless steel. All other associated metal parts are of steel, stainless steel, or steel/nickel alloy. Drawing Numbers M-L 11 21/1, 21/17, 22/1.
3. Lighting: Various freestanding single and double head lighting standards, installed in 1984.
4. Plumbing: Lock is watered by the Tainter valves (see above) serving a system of cast-in-place tunnels that enable the water level to be controlled on the interior of the lock.
5. Haulage Unit: Motorized winch assembly to assist towing of barges through lockage. Replacement units were installed in the mid-1970s.
6. Traveling Mooring Keels: Two large cleats on rails which extends the length of both the upstream and downstream guidewalls. Installed in 1980, the keels are used to assist towing of barges through lockage.

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D. Other Elements:

1. Auxiliary Lock: Fixed miter gate without machinery and partial walls are located riverward of the main lock. It is equipped with wells for machinery placement, but was never completed or put into service. Drawing Numbers M-L 11 20/1; 20/5.
2. Upper Approach Flow Deflecting Dike: Sand dike extending from Iowa shore. It was added in 1941 to control outdraft which made navigation into and out of upstream end of lock difficult.
3. Slough Impoundment: Pool of water confined by intersection of 1941 upper approach flow deflecting dike and 1947-48 earthen dog leg extension to upstream guidewall.
4. Boat Launches: Installed ca. 1970, the launches are four single-armed derricks of metal construction; three small ones on riverwall and one large one on land wall. They were used to load and unload materials as well as launch lifeboats..

PART III. TECHNOLOGICAL INFORMATION--MOVABLE SECTION OF DAM

A. General Statement:

1. Design Character: Combination roller/tainter low dam system design. Drawing Number M-L 11 40/1.
2. Architectural Character: 2a roller gate piers. Drawing Number M-L 11 40/2
3. Condition of Fabric: Excellent.

B. Description of Exterior

1. Overall Dimensions: 1,478 feet in length. Drawing Number M-L 11 40/1.
2. Foundation: 30-floor round timber pile with 25 to 30-foot sheet piling cutoff wall enclosing outside limit.
3. Pier House Walls: Monolithic reinforced concrete. Drawing Numbers M-L 11 41/1 and 41/2.
4. Structural System: Monolithic concrete/structural steel.
5. Fenders: Concrete fenders located at the base of each pier.

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6. Openings:

- a. In Overall Structures: 16 water-channels and 2 archways; clustered in groups by sizes, west to east--5 water-channels ca. 60 feet wide; 3 water-channels ca. 100 feet wide; 8 water-channels ca. 60 feet wide; 2 archways ca. 60 feet wide. Drawing Number M-L 11 40/1.
- b. In Pier Houses: 1 doorway, and 11 three-paned slit windows for each of four pier houses.. Drawing Number M-L 11 40/2.
 - (1) Doorways and doors: 4
 - (2) Windows: 44
- c. In Access Tower: 2 doorways and doors. Drawing Number M-L 11 40/4.

7. Roofs:

- a. Shape, covering: Pier houses have flat roofs covered in membrane/tar composition. Drawing Number M-L 11 41/3.
- b. Towers, abutments, piers: 2 abutments; lockwall abutments includes access tower; 17 piers (11 tainter gate piers, 2 2a-style roller gate piers, 2 2a-style transition piers or combination tainter and roller gate piers, and 2 service bridge extension piers); 4 2a-style piers have pier bouse towers. Drawing Numbers M-L 11 40/1, 40/4, 40/17, 40/3, 40/2, 40/10, 40/12, 40/13, 40/25.

8. Service Bridge:

- a. Shape: Arched spans in a segmental series.
- b. Materials: Structural steel. Drawing Number M-L 11 53/1.

C. Description of General Layout and Principal Elements:

- 1. Access Plan: Simple stairway in the access tower which itself is part of the abutment resting on the riverwall of the auxiliary lock. This stairway leads to service bridge deck where walkway/rail tracks extend full length of dam. Access to all four pier bouses directly off deck. Access to storage yard below easternmost 200 feet of dam by simple exposed stairway at the western end of service bridge. Drawing Numbers M-L 11 40/1, 40/4, 53/1, 53/9, 53/10.

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2. Stairways: In access tower--reinforced concrete with pipe railing; at end of service bridge extension--open metal with pipe railing. Drawing Numbers M-L 11 40/4, 53/1.
3. Flooring: In pier houses and access tower--reinforced concrete; on service bridge deck--wooden plank. Drawing Numbers M-L 17 40/4, 53/10.
4. Wall and Ceiling Finish: Reinforced concrete. Drawing Numbers M-L 11 40/4, 40/5.
5. Hardware: Brass.

D. Mechanical Equipment:

1. Movable Gates: Thirteen 60-foot-wide by 20 feet high, 2b-type Tainter gates operated by line shafts and motors housed in installations above each gate; 3,109-foot-wide by 20 feet high, 8-foot submersible roller gates operated on tooth track by chain driven hoist machinery located in pier house adjacent to each gate. Drawing Numbers M-L 11 48/1, 47/1, 55/1A, 54/1.
2. Movable Crane: 30-ton vertical lift electric crane with 70-foot boom (replaced in 1983-84) used for moving parts and equipment. Sits on original (ca. 1938) crane trolley which also supports additional bridge crane used for lifting emergency bulkheads, etc. Trolley rides on 15-gauge track system running entire length of service bridge deck. Drawing Numbers M-L 11 53/11, 53/10, 58/3.
3. Lighting: Fixtures as of times of installation - 1936-37. Rewiring may have taken place over the years--extent is unknown. Drawing Number M-L 11 56/1.

E. Other Elements:

1. Earth Dikes: 3,340-foot long curved non-overflow earth and sand-filled dike with rip-rap revetment topped with a clay and gravel road extends from the eastern end of the movable section of the dam to the old Eagle Point highway bridge approach levee. Drawing Numbers M-L 11 40/1, 52/1.
2. Emergency Bulkheads: Temporary block units of riveted structural steel girder construction placed in gate openings in periods of emergency or repair. Two types exist, one for roller gates and the other for Tainter gates. All have end guide and reaction rollers, buffer blocks, molded rubber seals, and curb plates. Drawing Numbers M-L 11 58/1, 58/1A.1, 58/1A/2, 58/2, 58/2A.

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3. Emergency Bulkhead Car/Tracks: Located in storage yard, the flat cars designed to store and access bulkheads. In the past, one of these cars was from time to time hoisted up to the service bridge and towed behind the movable crane. Repair materials were hauled on the car when used in this way. Drawing Numbers M-L 11 53/12, 40/24.
3. Storage Yard: 200-foot-long area extending from west abutment under service bridge extension, i.e., under last two archways in dam. The yard contains replacement parts for gates, bulkheads on track cars and related repair items. Drawing Number M-L 11 40/24.

PART IV: TECHNOLOGICAL INFORMATION-ESPLANADE AREA

A. Description of Esplanade--General Layout:

1. Design Character: Standardized park/service area and access road component. The five-acre main esplanade area was originally designed to accommodate the Central Control Station, Lockmaster and Assistant Lockmaster Residences, parking, and other service-related functions. The approximately 1,545-foot-long roadway is 20 feet wide. It connects the lock esplanade with Lincoln Street in the city of Dubuque. Major site alterations have occurred since that time and are noted in the following items.
2. Architectural Character: 1b Central Control Station. Drawing Number M-L 11 70/1.
3. Historic Landscape Design: Based on standardized designs--see drawings for Lockmaster's residences. Drawing number M-L 11 38/1.

B. Condition of Site and Structures: Altered

1. Central Control Station - Exterior: Standardized 1b construction. Major alteration in 1985 rehabilitation project placed insulation and face brick over original concrete finish. For originals, see Drawing Numbers M-L 11 70/1. Drawings for rehabilitation available from Rock Island District Office.
 - a. First Floor: Contains machinery room where central control panel located, bathroom, main office, and basement stairway access. Standby generator which dominated machinery room removed in mid-1970s. Drawing Number M-L 11 70/2.
 - b. Basement: Contains storage and equipment rooms. All interior finishes altered from original construction. Drawing Number M-L 11 70/2.

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2. Lockmaster's/Assistant Lockmaster's Residences (standardized, Colonial Revival with side porch): The structures has bsen moved off site to locations in Dubuque, Iowa. Related structures, such as garages, have been demolished.
3. Outbuildings: Various shed and aervice buildings have been erected from time to time as demands required--none have particular significance or contribute to the site. A metal emergency generator building was constructed just upstream from the Central Control Station in the mid-1970s. It is a standardized element. A new garage structure of brick and steel was erected on the old site of the Lockmaster's residence ca. 1980. This element is also standardized.

PART V: SOURCES OF INFORMATION

- A. Original Architectural/Engineering Drawings: Mississippi River Lock and Dam 11, lock operations folio, February 1936, file No. GP57-10; Mississippi River, Lock and Dam 11, dam operations folio, January 1940, file No. GP57-7; Rock Island District Office-Construction Drawings--Mississippi River Locks and Dams 1937-1986, (passim), Rock Island District Library, Clock Tower Building Annex, Rock Island, Illinois.
- B. Early Views: Over 1,400 high quality 8x10 black and white construction photographs: Lock and Dam Number 11-Photo Book groups 1140, 1165, 1180, 121.81 (3 vola.), and "Roadways, Locks 10, 11, 13, 14" , Rock Island Arsenal, Rock Island, Illinois.
- C. Interviews: Present and past personnel--Lock and Dam Number 11, Dubuque, Iowa.
- D. Bibliography:
 1. Primary and unpublished sources: National Archives Record Group 77, Entry 81, Chicago National Archives and Records Center; National Archives Record Group 77, Entries 111 and 112, Washington National Records Center, Suitland, Maryland; Chief of Engineers Annual Reports, 1927-1987; see also bibliography in HAER No. IA-23 narrative history.
 2. Secondary and published sources: Sae bibliography in HAER No. IA-23 narrative history.
- E. Likely Sources Not Yet Investigated: National Archives Record Group 77, Entry 107 (132 linear feet), Washington National Records Canter, Suitland, Maryland; National Archives Record Group 77, Entry 1656, exact repository unknown; and National Archives Record Group 77, Entries 608, 609, and 610 (collective total 5 linear feet), National Archives, Washington, DC.

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- F. Supplemental Material: 83 film canisters of 1931-1939 silent movies of the construction process taken by the Corps of Engineers, Rock Island District Office, Rock Island Arsenal, Rock Island, Illinois.
- G. Notes: The notes for this outline are contained in the notes section of HAER No. IA-23 narrative history.